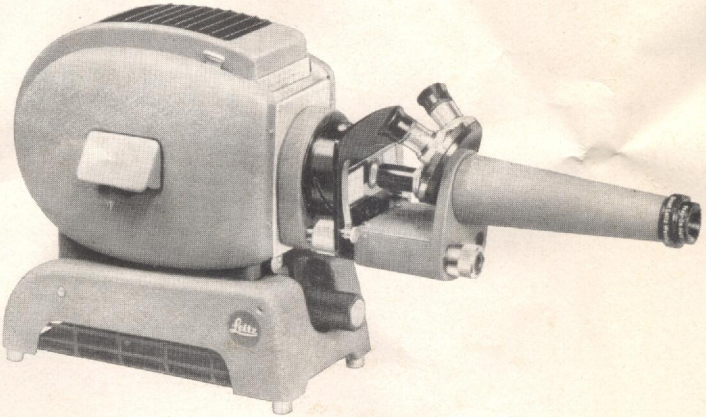
OPERATING INSTRUCTIONS

Leitz
WETZLAR

Micro-attachments

for the Miniature Projectors ®PRADO 250/500
®PRADO 66
®pradovit



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® = registered trade mark

Introduction

All micro-attachments leave our works ready for use and fully adjusted. All mechanical and optical parts are thoroughly cleaned before despatch. Any dust, dirt, and above all touching the glass surfaces must be strictly avoided. Even minute traces of perspiration may adversely affect a glass surface even after a short time.

Any finger marks on glass surfaces should be removed at once with a soft, non-fluffing piece of cloth. Dust is easily removed from glass surfaces with a soft sable brush. Enamelled parts are cleaned with a piece of linen or chamois leather and petrol (no spirit). Oil vapours, chemical fumes, etc. must not be allowed to come in contact with the instrument as they may attack optical and mechanical parts. Should condensation occur on the instrument after a sudden change in temperature, projection should be delayed until the condensation has evaporated spontaneously.

The specimen

For well-projected micro-images first-class specimens are essential. It is therefore important to examine the preparations for their suitability and effect (cleanness) before they are projected. Projection will reveal that correctly stained specimens produce images of great brilliance and accurate colour rendering. As a rule, unstained specimens are less effective in projection and not always satisfactory.

Histological, zoological, etc. specimens can be projected with all attachments. Liquid or easily flowing objects are best projected with the vertical attachment or the large vertical micro-attachment. Samples of fluids, aquarium specimens, etc, are poured into the micro-aquarium for projection, preferably in the large micro-attachment.

Objectives and eyepieces

The objectives on the revolving nosepiece of the attachments are matched and should therefore not be exchanged. During a change of magnification the image field remains centred and in focus. For this reason it is not recommended to use the objectives separately on a microscope.

The objectives have anti-glare mounts to avoid reflections from the front lens mounts. In addition, the front lens of the most powerful objective, 25/0.50, is spring-mounted for the protection of both the front lens and the specimen.

The eyepieces, which are clamped on the tube of the micro-attachment, are interchangeable.

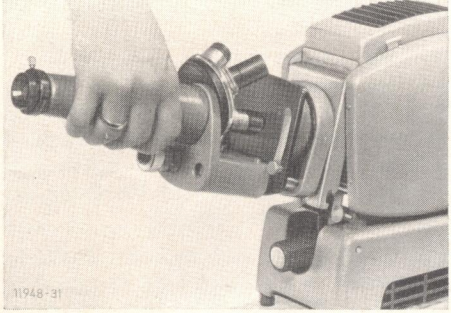


Fig. 1

Fig. 2

Fitting and removal of the attachments

PRADO 250/500 or PRADO 66

Hook the micro-attachment into the top one of the two cross-bars on the front of the PRADO 250/500 or the PRADO 66 (Figs. 1 and 2).

Only slight downward pressure is necessary for the attachment to engage with an audible click when it will be firmly in position.

Removal

Depress a key with your right thumb. Lift and remove the attachment with your left hand (Fig. 3 and 4).

Fig. 3

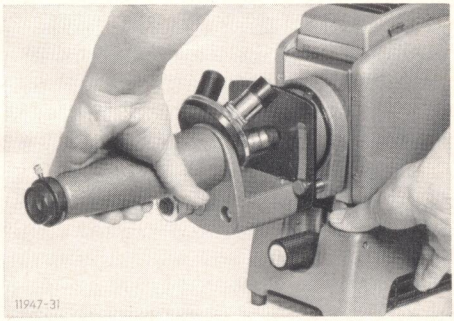


Fig. 4

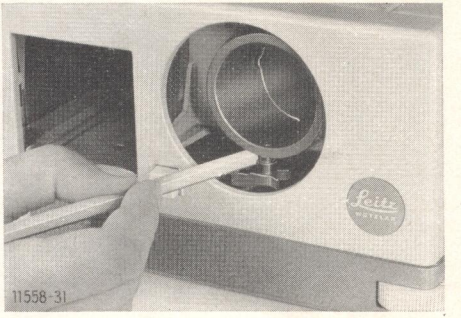


Fig. 5

Fig. 6

pradovit

Remove the projection lens

With the aid of a pencil or a screwdriver disengage the cam of the intermediate tube from the holder of the remote-control focusing mechanism towards the right (Fig. 5).

Remove the intermediate tube.

Remove the barrel, gripping it by its milled rim (Fig. 6).

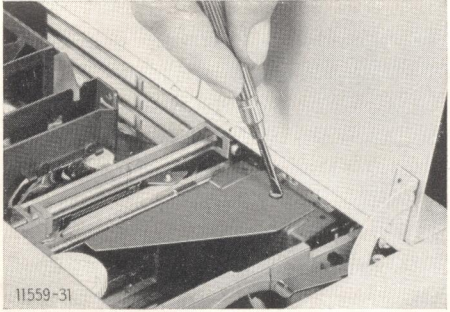


Fig. 7

Insert mask to eliminate stray light (Fig. 7).

Exchange interchangeable condenser (Fig. 8).

(The interchangeable condenser also acts as a heat filter).

Hook in the adapter for the micro-attachments at the top, push against the projector housing and clamp with the milled screw (Fig. 9).

The adapter is now centred in front of the projector window of the pradovit, depressing the arresting button for the hood on the pradovit (see also Fig. 10).

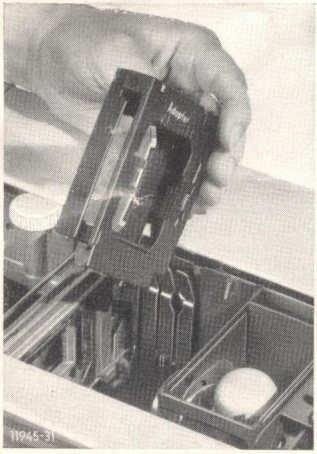
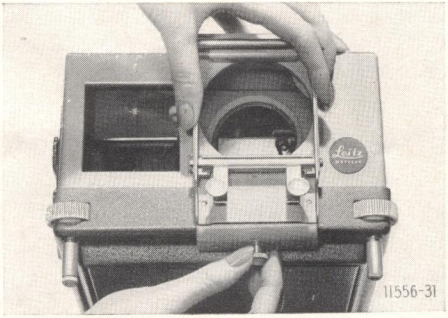


Fig. 8

Fig. 9



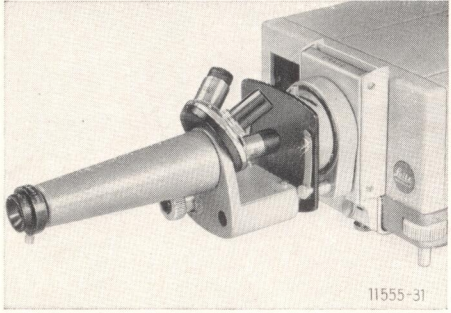
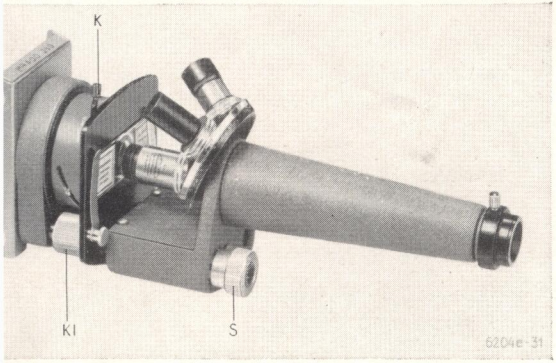


Fig. 10

Operation

Fig. 11



Large micro-attachment (Fig. 11)

Switch on projector.

Clamp the specimen on the object stage with the specimen holders (cover glass facing the objective).

Turn in the 3.5/0.10 objective to project a general survey field.

Set condenser (K) on "schwach" (low-power).

Focus the image with the micrometer screw (S).

For images of higher magnification, either the 10/0.25 or the 25/0.50 objective on the revolving nosepiece is turned in, and the condenser set at the intermediate or "stark" (high power) position respectively.

During magnification change
if necessary, refocus the image with the micrometer screw (S).

During projection, the projection eyepiece should be pushed as far into the microscope tube as possible, and clamped in this position. For rotating the projected image the entire attachment is rotated.

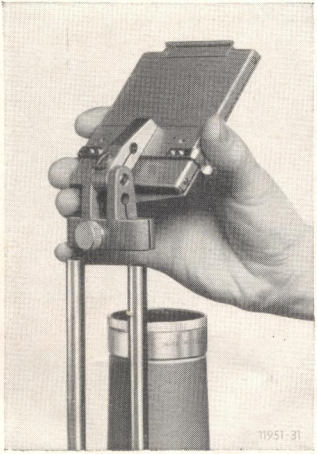
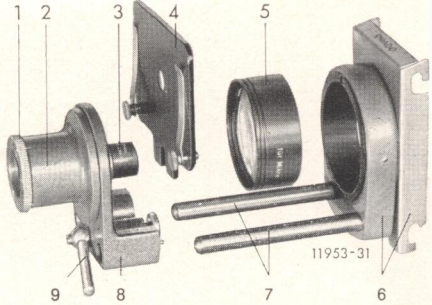


Fig. 12

Fig. 13

1 Milled objective ring
2 Objective tube
3 Objective
4 Object stage
5 Interchangeable condenser in mount
6+7 Rotating adapter with parallel rods
8 Objective angle holder
9 Clamping lever



The following additional points should be observed with the vertical micro-attachments and the small micro-attachment: –

Large vertical micro-attachment

Attention: – The deflecting mirror is surface coated. Under no circumstances must it be touched by hand as this destroys the coating. The protective lid should be opened for projection only. Dust should be removed with a soft sable brush.

Push the mirror on to the two parallel rods (Fig. 12).

Clamp mirror with the arresting screw.

Raise protective lid to the back. By tilting the deflecting mirror, adjust the projected image vertically so that the projection axis is normal to the projection screen.

Small micro-attachment (Fig. 13).

For projection, the angle holder with objective and object stage must be pushed against the interchangeable condenser as far as possible. For focusing adjust the milled ring of the objective.

Removal of the object stage: –
Slide the objective holder slightly forward on the parallel rods (Fig. 14).

Release clamping lever.

Remove object stage (Fig. 15).

The micro-attachment can be rotated.

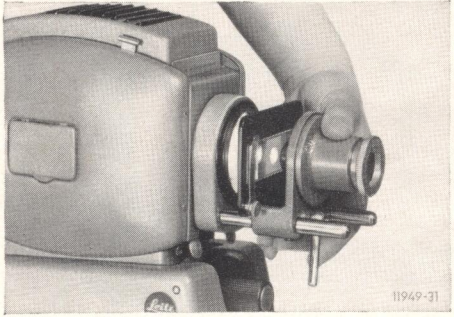


Fig. 16

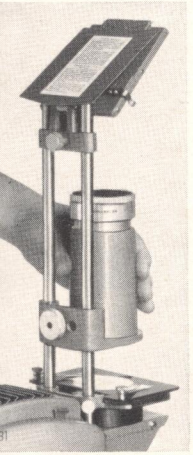


Fig. 17

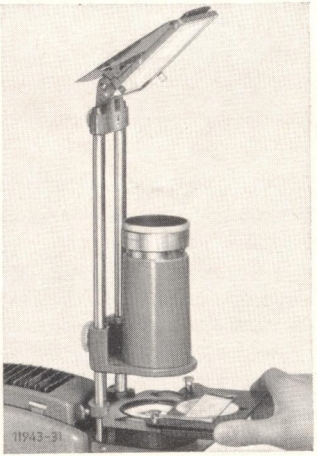


Fig. 14

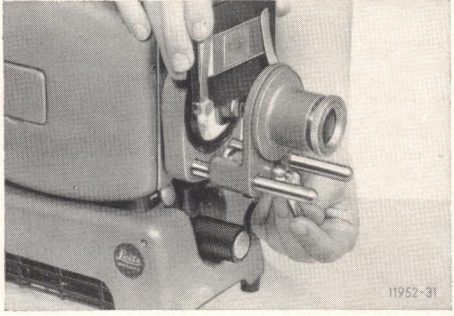


Fig. 15

Vertical attachment

Loosen clamping screw.

Coarse-focus projected image by adjusting the lens barrel (Fig. 16).

Tighten clamping screw.

Carry out fine focusing with the lens.

Removal of the object stage: –
Pull out the object stage from its holder (Fig. 17).

Possibilities of converting the micro-attachments

Small micro-attachment (Fig. 13) **into large micro-attachment: –**

Remove the angle holder with objective and object stage from the parallel rods.

Remove spherical condenser lens with mount (engraved "Mikro").

Push the microscope tube with objectives, object stage and adjustable condenser lens on to the parallel rods as far as possible.

Clamp tube to the parallel rods by means of a clamping screw (Kl, Fig. 11).

Large micro-attachment into small micro-attachment: –

The grooves on the mount of the interchangeable condenser (engraved "Mikro") must be visible on the adapter when the condenser is in position. The sequence of the conversion is the reverse of that described above (Fig. 18).

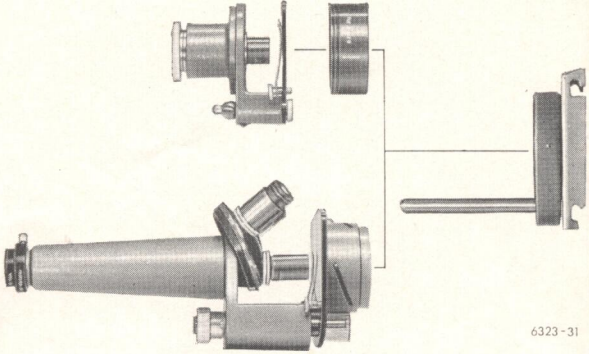


Fig. 18

Vertical attachment into large vertical micro-attachment: –

Remove deflecting mirror.

Remove lens barrel.

Remove object stage with its holder.

Remove spherical condenser lens (engraved "Obj. 9–12 cm").

Push microscope tube with objectives, object stage and adjustable condenser lens on to the parallel rods as far as possible.

Clamp tube on the parallel rods by means of the clamping screw (Kl, Fig. 11).

Replace deflecting mirror.

Clamp deflecting mirror.

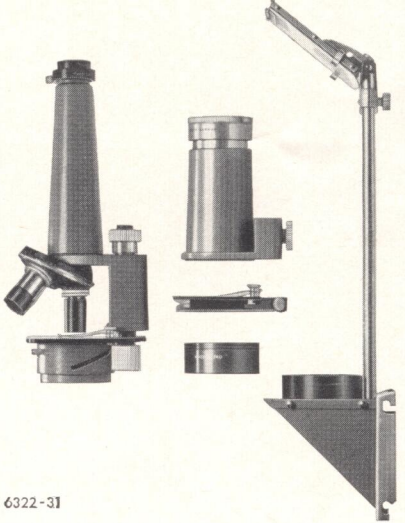


Fig. 19

Large vertical micro-attachment into vertical attachment: –

The grooves in the interchangeable condenser (engraved "Obj. 9–12 cm") must be visible on the mount on the adapter when the condenser is in position. The sequence of the conversion is the reverse of that described above (Fig. 19).

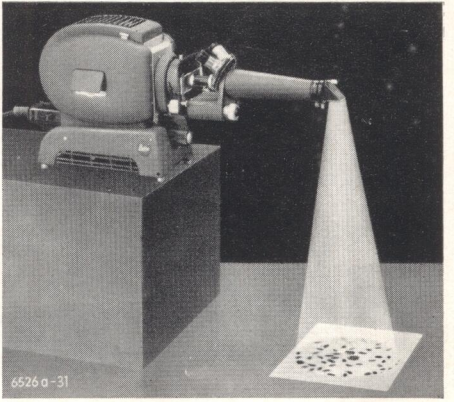


Fig. 20

Projection prism

For bench projection (Fig. 20) the adjustable projection prism is clamped onto the projection eyepiece.

We reserve the right to change construction and design.

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